

Summary on China's Bio-safety Protection Level 4 (P4) laboratory, Wuhan Institute of Virology

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Background

China decided to build a P4 laboratory in 2003 when the outbreak of SARS spread across the country. In April 2003, the former prime minister of France, Jean-Pierre Raffarin visited China, and the two countries agreed to cooperate over infection disease control. The construction of the P4 laboratory became the top priority.

In collaboration with Jean Merieux BSL-4 laboratory in Lyon, France, China's first p4 lab was constructed in Wuhan Institute of Virology (WIV, an institute under the Chinese Academy of Sciences CAS). It took 11 years to complete. In January 31, 2015 WIV celebrated the completion of the facility. Now 2 years and 9 months later the lab is operational and ready to be used for research on highly infectious pathogens. This is the first p4 laboratory in Asia.

Facility

The p4 lab is located in a new developing zone about one hour car ride from the current institute location in the city of Wuhan, Hubei province. The location will be the new campus for the entire institute in the near future. The building, which looks like a giant cube from outside, occupies over 3000 sq meters. It has 4 floors. The bottom floor is for water treatment and essential equipment for protection and safety operations such as oxygen generators. The second floor has 3 experimental (two equally sized labs each can have 4 people working at the same time; another smaller lab is connected to the animal housing area for conducting animal experiments), 2 animal laboratories (one for small sized animals and one for mid-sized animals such as non-human primates or ferrets), 1 operating room for animals, an animal viral storage room. The third floor holds various ducts and wires, the fourth floor is for air filtering.

Several teams are involved in management of the facility. There is a team of technicians who are trained to conduct experiments inside the p4 lab. Others include the facility people, the management personnel, biosafety team, and security. The person who gave me the tour is a trained technician. According to him, being the 1st p4 lab in the country, they have to learn everything from zero. They rely on those scientists who have worked in p4 labs outside China to train the other scientists how to operate in the p4 lab.

I learned from the conversation and find interesting that the institute has to apply for permission for the types of pathogens they can work with in the p4 lab. So far WIV only obtained the permissions for three viruses: Ebola, NIPAH, and XinJiang hemorrhagic fever (a strain of Crimean Congo hemorrhagic fever found in Xinjiang province China). The permission is given by the National Health and Family Planning Commission. Interestingly Chinese government does not allow the import of Ebola viruses. So what is the point to permission for working on Ebola viruses when there is no pathogen to work with (**three lines of redaction present**)

How NHFPC determines what kind of viruses can or can't be worked in the p4 lab now is unclear. (**three lines of redaction present**)

As Transcribed By Staff During In Camera Review After HHS Lifted Some Redactions

It is clear to me by talking to the technician that certainly there is a need for training support. The French lab that helped the construction of the lab does not provide technical training for laboratory operations. From limited information I have UTMB in Galveston, which also hosts one of several p4 labs in the united states and supported by NIAID, has provided training to WIV. I think the institute would welcome any help and technical support by NIAID, has provide training to WIV. I think the institute would welcome any help and technical support that NIAID can provide when there is need.

I also learned form the conversation that another –p4 lab is either under construction or planning, which will be for veterinary use. It would be located in the Harbin Veterinary Research Institute, another CAS institute. This p4 lab would have the capacity to work on large animals.